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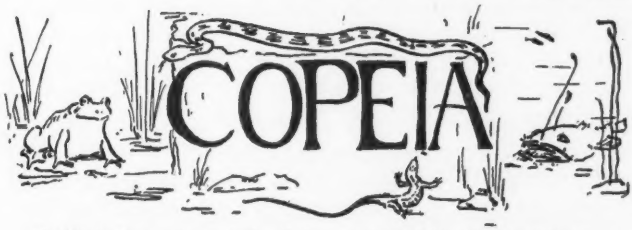

Published to advance the Science of cold-blooded vertebrates

A RECORD OF THE BERMUDA CHUB (KYPHOSUS) FROM LONG ISLAND, NEW YORK.

A Bermuda Chub (*Kyphosus sectatrix*) was taken November 2, 1915, at Orient, Long Island, in Long Island Sound. It was 10 inches long, 3 inches deep, 1 inch thick in widest part near the head. The specimen has been identified by the Department of Fishes of the American Museum of Natural History, New York, from a photograph taken of it at the time of capture.

I have been about pound-fishing for over twenty years on the east end of Long Island, and this is the first specimen of this species that I have seen.

ROY LATHAM,
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AQUARIUM CULTURE OF TRICHOGASTER LALIUS.

Of all the Labyrinth-fish so far known in this country not one has been such a general favorite as *Trichogaster lalius*, commonly called Dwarf Gurami. Seldom more than two inches in length, this little beauty, which was first imported from India into Europe in 1903, has, through its interesting habits in breeding and general graceful bearing, quickly found many friends in the Aquarium world. At first ex-

tremely shy, and hiding itself away at the slightest disturbance, with proper care it soon becomes tame. It is interesting to see them go up to any new stone or other object which has been placed in the aquarium and examine it with their feelers.

The principle color extending over the body of the male, excepting the fins and tail, is steel blue, with irregular orange zigzag bands running vertically. The fins and tail (except the pectoral fins) are orange, mottled with a great number of red spots the size of a pin-head, the edges of the fins are blue with bright red tips. During the mating and breeding seasons these already bright colors are greatly intensified. The pale orange becomes redder and the blue throat a most brilliant dark steel blue.

The nest-building habits are somewhat different from those of the other fish of this family. Whereas Paradise fish, and other Guramis, Fighting-fish, etc., make their nest entirely of air bubbles, Lalius utilizes small pieces of plants, roots, algae, etc., to form a somewhat dome-shaped structure which projects above the surface and is about two inches in diameter. Under this he builds his bubble nest. The completion of his nest will take him about a day, and there is not a second of rest or inactivity during this process. One minute one may see him tearing on a decomposed plant leaf and carrying the pieces so gotten to the spot chosen for the nest where they are thrown into a compact mass on the surface of the water, the next minute he may be seen chasing his perhaps too inquisitive and eager mate around the tank, punishing her with plainly heard whacks, until she retires to her undisputed hiding place. It is not obvious how the sound, something like that from snapping ones fingers, is produced. Or he may be at the surface of the water taking in air so that one might think he were trying to fill his whole body. After getting his supply he retires under the nest and fills the whole inside of the fibrous mass with small air bubbles.

After its completion he tries to induce the female to come under the nest. In many cases he can get her there only after a wild chase around the tank, but very often the female after watching the male finish his task in building the nest comes without urging to deliver her eggs. Now the male, resplendent in his most gorgeous colors, all atremble, after circling around her a few times, folds or bends himself around her body, at the same time turning her on her back, and then the hardly visible eggs are expurged, fertilized, and rise into and between the bubbles of the nest.

Hatching takes place, according to the temperature, in from 12 to 40 hours. The newly hatched fish are hardly visible. They are only discernible when they move, their eyes being practically the only things noticeable, as their bodies are perfectly clear and not distinguishable from the water. It is always advisable to remove the female immediately after the eggs are safely in the nest, as she is liable to dart up and eat them before her watchful mate can prevent her. As with all Labyrinth fish the male takes care of the eggs and young until the latter are able to leave the nest, and then he, too, should be taken out of the tank.

In order to be successful in raising the young ones, an even temperature of the water of at least 70° is absolutely necessary. It should not be more than three inches deep and there should be plenty of algae and plants such as *Salvinia, Riccia,* where the youngsters can find their food and a place to hide. In artificial feeding great care has to be taken not to feed too much, as any food left to decay will cause untold trouble. In giving live food such as small *Daphnia* or *Cyclops,* it is imperative to strain these through a very fine hair sieve, as the most minute only are fit for the young fish. Should any of the big ones get into the tank, they will in a few days time destroy and eat the fish. One of the worst enemies

which are liable to infest the tank when feeding live food are hydras, which in a very short time will destroy a whole brood, and it is very difficult to rid a tank of this pest.

Lalius will breed three or four and even more times during a season, the first broods always being more numerous and stronger than the later ones, but it is good policy not to let the fish breed too often, as the drain on their vitality may be too much and prove fatal.

RICHARD DORN,
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AMBLYSTOMA TIGRINUM ON LONG ISLAND, I.

After many years of futile search for *Amblystoma tigrinum* on Long Island, the past season has been unexpectedly productive in furnishing records of both adults and larvae of this species.

Records of Adults.

"Rancocas," the first and apparently specific record by William L. Sherwood (Linn. Soc. 1894-95, No. 7), is a misprint as no such place exists on Long Island. Mr. Sherwood admits this, yet in reasserting the occurrence of the species he prefers to withhold the right name of the station, fearing extermination.

Patchogue, 1 specimen from salt marshes near Swan Creek, identified from photograph by Dr. Frank Overton, who reports its capture "some years ago."

Syosset, November, 1914. 1 Specimen 8¼ inches, found near drain, cement basement, 1 Hudson Estate. Sent to N. Y. Zool. Park and is still living.

Yaphank, August 24, 1915. 1 specimen 8⅛ inches found in cellar, A. C. Weeks. Presented to Brooklyn Museum. Still living.

Shoreham, September 24, 1915. 2 specimens from an old well. Sent to Brooklyn Museum. One 7½ inches long is still living, the other, about same size, escaped.

Jamaica (Hill Section). 1 specimen about 7 inches long shown by Hermann Rabenau at Brooklyn Aquarium Society Exhibition, Brooklyn Museum, October, 1915.

Middle Island, October 10, 1915. Dr. Frank Overton, 1 specimen sent to American Museum of Natural History.

All the Long Island specimens examined vary but little in color pattern, which shows numerous irregular, olivaceous blotches, forming more or less connected bands at the sides and on the tail. The ground color is dull black above and lead-color below. The under-side of the head is olive-yellow. Of four living specimens now at hand, two males and two females, the latter are marked with blotches decidedly more olive-yellow than those of the males.

Search for adults under logs, stones, etc., in regions where they are known to occur failed so far. Apparently they have the habit of wandering considerable distances from their breeding places, hiding during the day in deep burrows, stone walls, drains, etc. The foreman of the I. Hudson Estate near Syosset told the author that a number of specimens are found nearly every year about the stables or under rubbish heaps. He also mentioned the reluctance of some of the workmen to clean the catch-basins because "there's lizards in 'em."

Captive specimens have been fed principally earthworms and also on tadpoles, small fishes, and caterpillars. They are voracious and omnivorous feeders. When hungry they will snap at a finger or anything held dangling before their mouths. Earthworms are shaken vigorously bull dog fashion, between gulps, until swallowed. The Museum speci-

mens, kept in a glass vivarium with wet, pebbly bottom and rock-shelter, have remained active throughout the winter, feeding freely, and molting, on the average, every ten days. The cast-off skins are very delicate, usually in the shape of a slimy ball. During the day the salamanders remain under the rock-shelter, but at night they prowl about with considerable agility.

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NOTES ON VIRGINIA HERPETOLOGY.

On November 25-28 I collected at Midway, Nelson Co., Va. (see COPEIA 18), and offer the following notes on late activity and additions to the previous list. The day temperature was exceptionally warm for the season, though it was below freezing every night.

Sceloporus undulatus (Latreille). One on a fence, November 27.

Acris gryllus crepitans (Baird). One in a swamp, November 28.

Rana clamata Daudin. One in a spring, November 26.

Desmognathus fusca (Raf.). 16 adults and 17 larvae.

Plethodon erythronotus (Green). 4 adults and 1 young.

Spelerpes bislineatus (Green). 4 adults and 2 larvae.

Spelerpes ruber (Daudin). 2 first year and 2 second year larvae.

Gyrinophilus porphyriticus (Green). One adult female. This was quite a surprise to me as the fauna is Carolinian and the altitude is 500 feet. This, so far as I can find out, is the second Virginian record

for this species, the other one was collected by Baird and is in the National Museum. The locality given as the "upper James River."

Notopthalmus viridescens (Raf.). 5 adult males.

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NOTE ON AMBLYSTOMA OPACUM, GRAV.

On September 25, 1913, the writer, with Mr. John Toomey, of the Reptile House Staff at Bronx Park, went to Silver Lake, near White Plains, N. Y., to collect Insects and Amphibia. The weather had been warm and dry for some time and all the pools in the woods were completely dried up. In about the center of one of these dried up pools Mr. Toomey, having lifted one of the many large slabs of bark partially buried among dead leaves, discovered an adult marbled Salamander, *Amblystoma opacum*, coiled around a quantity of gelatinous balls. Upon examination by the writer these were found to be eggs containing living embryos. The eggs were lying in a slight depression, the debris under the slab of bark being fairly damp. On searching further, another female with eggs was discovered, under similar conditions.

The eggs were about 3/16 of an inch in diameter, and not connected with one another in any way. They were covered with small particles of soil and desiccated leaves which adhered to the sticky gelatinous envelope. The eggs were kept in some of the debris in which they were found. On September 27, one batch was placed in a shallow pan of water, where they hatched on September 28.

The larvae were ⅝ of an inch in length, very slender and delicate, translucent and pale gray in color. The gills were very long and the delicate front

legs were fully developed. The second batch of eggs was kept in the damp debris until October 18, when these, too, were placed in water, where they hatched October 19. The writer fed the larvae on small fresh water crustaceans, which they could be observed snapping up with quick forward darts. Unfortunately these interesting larvae succumbed to an unusually hot spell late in October, 1913. Although several trips were made to the same locality during the early fall of 1914 and 1915, no further batches of spawn and very few adults were discovered.

In April, 1915, however, the writer collected about a dozen larvae of this species from another pool, nearer the lake. These were nearly two inches long, black with tiny silvery specks all over the upper surfaces, large gills and four well-developed limbs. They were at first thought to be *A. punctatum,* but when in early June, 1915, they lost their gills, the color pattern consolidated into the typical cross-marbling of *A. opacum.*

In conclusion I will remark that I am not aware of the existence of any other record of Amphibian spawn being found in the fall, as far north as New York State.

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Edited by J. T. NICHOLS, American Museum of Natural History
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